

C L A I M S

1. Machine for filling bags or the like, in particular with comestible liquids, essentially constituted by a transfer station (1) rotatable about a central vertical axle (2) mounted on a plate (2') secured to the frame of the machine, by multiple filling stations (3) each comprising a means (4) for gripping and holding the base of a removable closure (5) of a bag (6) and means (7) for manipulating the upper portion of said closure, and by a filling device (8) coacting with the opening of said closure (5) that is open following removal of the upper portion of this latter and supplied with liquid by a pump connected to a reservoir or the like, the assembly of these elements being managed by a control device, characterized in that the control device is a device with cam (9, 14) mounted fixedly on the machine.

2. Machine according to claim 1, characterized in that the cams (9 to 14), adapted for the actuation of the different elements of the machine, are mounted concentrically about the central vertical axle (2) on a plate (2') secured to the frame of the machine and disposed below the rotatable transfer station (1).

3. Machine according to any one of claims 1 and 2, characterized in that the cams (9 to 14) are mounted angularly adjustably on the plate (2') secured to the frame of the machine, by coaction with a corresponding lower annular support secured to said plate (2'), the holding in position, after adjustment, of the cams (9 to 14) being ensured by means of screws passing vertically through said cams and coacting with

their annular support or by lateral grippers that grip with screws.

4. Machine according to claim 1, characterized in that
5 each filling station (3) is constituted by a pivotable head (29), mounted on a vertical axle (3'), guided on the rotatable transfer station (1) by means of a fixed support (3''), mounted on said station (1), said pivotable head (29) being provided with an eccentric actuating pivot (16) coacting with an
10 assembly of a pusher (11') - an elbowed lever (11'') - a rod (11''') actuated by a cam (11) of the device with control by cams.

5. Machine according to claim 4, characterized in that
15 the elbowed lever (11'') is mounted pivotably on the transfer station (1) by means of a bearing (15) and is articulatedly connected by its two ends, respectively to one end of the pusher (11'') opposite the cam (11) and to one end of the rod (11'''), which is mounted articulatedly on the eccentric
20 actuating pivot (16) of the head (29) of the filling station (3).

6. Machine according to any one of claims 4 and 5, characterized in that the pusher (11') is guided on the
25 transfer station (1) by means of a sleeve (18) secured to this latter and is provided at its end coacting with the cam (11) with a bearing roller (17), a spring (19) mounted concentrically on the pusher (11') between the sleeve (18) and a shoulder or a bearing ring located adjacent the roller (17)
30 ensuring permanent contact of this latter with the cam (11).

7. Machine according to claim 1, characterized in that the means (4) for gripping and holding the base of a removable closure (5) of a bag (6) of each filling station (3) is constituted by an assembly of left and right pinchers (4', 4'') with differential actuation controlled respectively by cams (10 and 7) of the control device with cams, by means of assemblies of pushers (10', 9') - elbowed levers (10'', 9'') - rods (10''', 9''').

8. Machine according to claim 7, characterized in that the elbowed levers (10'', 9'') are articulated on the transfer station (1) by means of respective bearings (23, 22) and the pushers (10'', 9'') are guided on this transfer station (1) by means of sleeves (21, 20), said pushers being moreover provided, on the one hand, each with a roller (27, 26) for bearing on the respective cams (10 and 9) and, on the other hand, with a compression spring (25, 24) bearing adjacent its end carrying the bearing roller and against the sleeve (21, 20).

9. Machine according to any one of claims 1 and 4, characterized in that the means (7) for manipulation of the upper portion of the closure (5) is constituted by a sleeve (28) for gripping the upper portion of the closure (5) mounted on the head (9) of the filling station (3) with the possibility of slight movement parallel to the axle (3') of support of the head (29).

10. Machine according to claim 9, characterized in that the sleeve (28) is mounted on the head (29) by means of a shock absorbing guide assembly (30 to 32) constituted by a sliding axle (30) loaded with a spring (31) and by a guide rod (32)

coacting with corresponding guidance of a head (29) and holding the latter against rotation about the axle (30).

11. Machine according to claim 9, characterized in that the sleeve (28) is provided with at least two pinchers with opposed claws (28') each loaded by a return spring in a position of closure of the claws.

12. Machine according to any one of claims 1 and 4, characterized in that the axle (3') of each filling station (3), which is guided on the fixed support (3'') secured to the transfer station (1), passes through said transfer station (1) and coacts at its free end opposite the head (29) with an annular cam (12) of the control assembly with cams (9 to 14), by means of two lugs or guide rollers (3''') bearing on opposite sides of the annular cam (12).

13. Machine according to any one of claims 1 and 4, characterized in that the filling device (8), coacting with the opening of the closure (5), is mounted on the movable head (29) of the station (3) and is pivotably displaceable, together with the means (7) for manipulation of the upper portion of the closure (5), and is present in the form of a hollow body that can be applied in sealed relation against the lower portion of the closure (5), this hollow body being on the one hand connected by a connection (33) to a conduit (34) for connection to the filling pump connected to a reservoir and, on the other hand, provided with closure means for the connection (33) controlled by a pneumatic jack (35).

14. Machine according to claim 1, characterized in that the transfer station (1) is provided, at each filling station

(3), with a means (36) for support, closure and evacuation of the bags (6), which is essentially constituted by a pivoting device (37) for reception of the bags coacting with a control cam (14) and by an assembly (38) for closing the bags (6) after
5 filling, coacting with a control cam (13).

15. Machine according to claim 14, characterized in that the pivoting device (37) for reception of bags coacting with a control cam (14) is present in the form of a pivoting support
10 plate (37') articulatedly mounted on the transfer station (1) by means of a pivoting shaft (37'') and by an actuating arm (37'''), secured to the pivoting support plate (37') and coacting at its free end by means of a roller or the like (39), with the cam (14) of the control device with cams.

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16. Machine according to claim 14, characterized in that the assembly (38) for closing bags (6) after filling is present in the form of a bearing plate (38') disposed in a shape-mating recess of the pivoting support plate (37'), this plate (38')
20 being secured to a pusher (38'') guided below the plate (37') in a sleeve (40) secured to this latter and bearing by its opposite end by means of a roller or the like (41) against the cam (13) of the control device with cams, a compression spring (42), mounted between the sleeve (40) and the end of the pusher
25 (38'') carrying the roller (41), ensuring permanent bearing of said pusher (38'') against said cam (13).

17. Machine according to any one of claims 15 and 16, characterized in that the sleeve (40) for guiding the pusher
30 (38'') of the closure assembly (38) is an integral portion of the actuating arm (37'''), this latter being secured to said

sleeve (40) eccentrically relative to the axle of the pusher (38'').

18. Machine according to claim 1, characterized in that
5 its drive is effected by means of an electric motor controlled by means of an electronic control circuit.